

1978/10/23  
2306

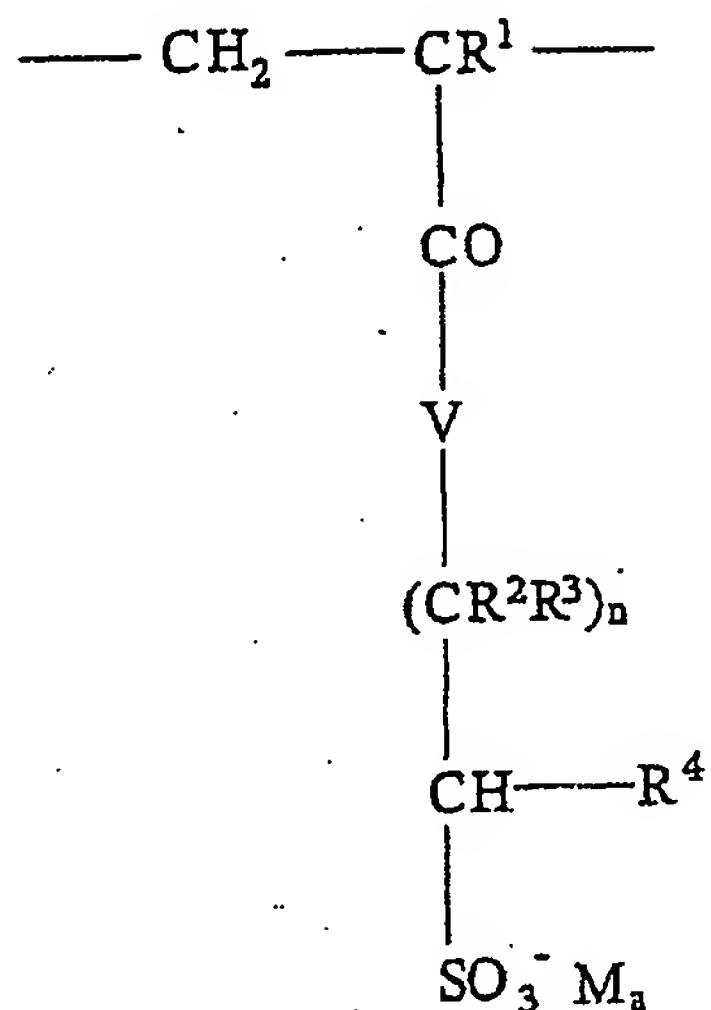
**TRANSLATION OF ANNEXES OF INTERNATIONAL  
PRELIMINARY REPORT ON PATENTABILITY**

**New claims**

1. A water-soluble copolymer or terpolymer which contains sulfo groups and has a number average molecular weight of from 50 000 to 20 000 000 g/mol and consists of:

5 a) from 3 to 96 mol% of structural groups of the formula I

10



(I)

where  $\text{R}^1$  = hydrogen or methyl,

15  $\text{R}^2$ ,  $\text{R}^3$ ,  $\text{R}^4$  = hydrogen, an aliphatic hydrocarbon residue having from 1 to 6 carbon atoms, a phenyl residue which may be unsubstituted or substituted by methyl groups,

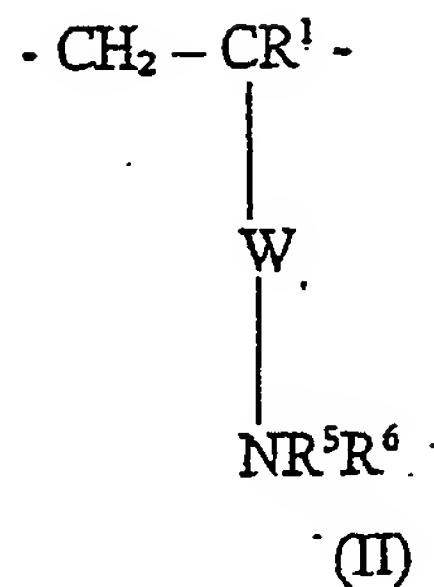
$\text{V}$  = NH or oxygen,

20  $\text{M}$  = hydrogen, a monovalent or divalent metal cation, ammonium or an organic amine residue,

$n$  = 1 to 5,

$a$  =  $\frac{1}{2}$  or 1,

b) from 3 to 96 mol% of structural groups of the formula II



5

where  $\text{W} = -\text{CO(O)} - (\text{CH}_2)_x -$ ,  $-\text{CO-NR}^2 - (\text{CH}_2)_x -$ ,

$x = 1$  to  $6$ ,

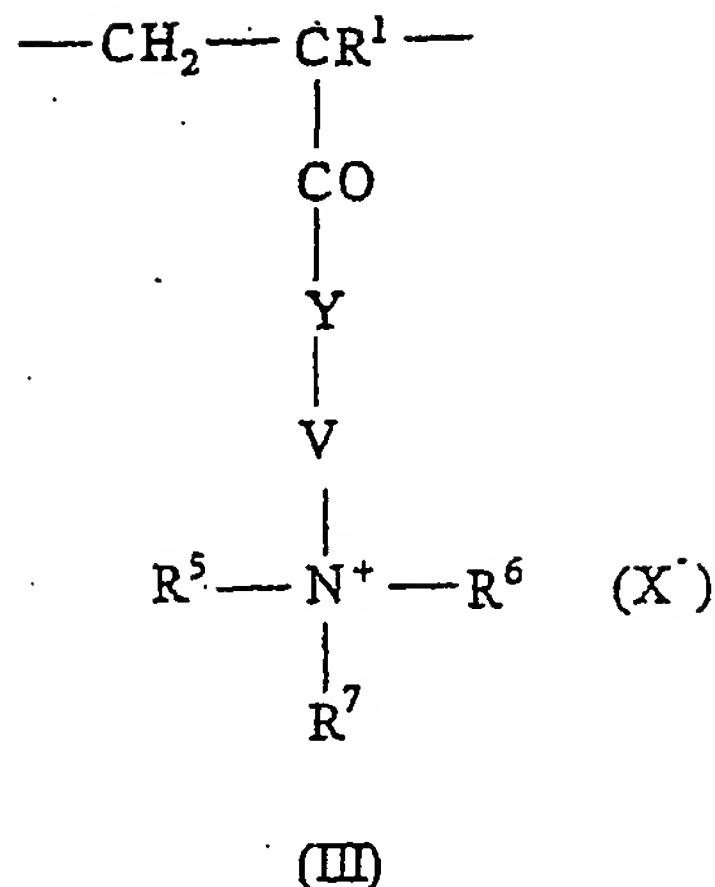
$\text{R}^5$  and  $\text{R}^6$  = hydrogen, a substituted or unsubstituted aliphatic hydrocarbon residue having from 1 to 20 carbon atoms, a cycloaliphatic hydrocarbon residue having from 5 to 8 carbon atoms, an aryl residue having from 6 to 14 carbon atoms, and  $\text{R}^1$  and  $\text{R}^2$  are as defined above,

15

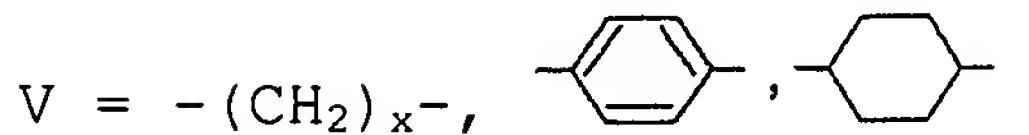
and/or

c) from 0.05 to 75 mol% of structural groups of the formula III

20



where  $\text{Y} = \text{O}$ ,  $\text{NH}$  or  $\text{NR}^5$ ,



5  $\text{R}^7 = \text{R}^5$  or  $\text{R}^6$ ,  $-(\text{CH}_2)_x\text{SO}_3^{\ominus}\text{M}_a$ ,  $-\text{C}_6\text{H}_4\text{SO}_3^{\ominus}\text{M}_a$ ,  $-\text{C}_6\text{H}_{11}\text{SO}_3^{\ominus}\text{M}_a$ ,  
 $\text{X} = \text{halogen}$ ,  $\text{C}_1\text{-C}_4\text{-alkylsulfate}$  or  $\text{C}_1\text{-C}_4\text{-alkylsulfonate}$   
and  $\text{R}^1$ ,  $\text{R}^5$ ,  $\text{R}^6$ ,  $\text{M}$ ,  $\text{a}$  and  $\text{x}$  are as defined above,  
as stabilizer for aqueous building material  
10 systems and water-based paint and coating  
systems.

2. The copolymer as claimed in claim 1, characterized  
15 in that the monovalent or divalent cation is a  
 $\text{X} = \text{chlorine}$ ,  $\text{bromine}$ ,  $\text{sulfate}$  or  $\text{methylsulfate}$ .

3. The copolymer as claimed in claim 1 or 2,  
20 characterized in that the structural group a)  
comprises 2-acrylamido-2-methylpropanesulfonic acid  
or salts thereof.

4. The copolymer as claimed in any of claims 1 to 3, characterized in that up to 50 mol% of the structural groups a), b) or c) are replaced by structural units derived from acrylamide or N,N-dimethylacrylamide monomers.
5. The copolymer as claimed in any of claims 1 to 4, characterized in that up to 50 mol% of the structural groups a) are replaced by other structural units which contain sulfo groups and are derived from methallylsulfonic acid or allylsulfonic acid monomers.
10. The copolymer as claimed in any of claims 1 to 5, characterized in that the organic amine residues are preferably substituted ammonium groups derived from primary, secondary or tertiary C<sub>1</sub>-C<sub>20</sub>-alkylamines, C<sub>1</sub>-C<sub>20</sub>-alkanolamines, C<sub>5</sub>-C<sub>8</sub>-cycloalkylamines and C<sub>6</sub>-C<sub>14</sub>-arylamin es.
15. The copolymer as claimed in any of claims 1 to 6, characterized in that the hydrocarbon or aryl residues of R<sup>5</sup> and R<sup>6</sup> are further substituted with hydroxyl, carboxyl or sulfonic acid groups.
20. The copolymer as claimed in any of claims 1 to 7, characterized in that it comprises from 40 to 80 mol% of the structural group a), from 10 to 55 mol% of the structural group b) and/or from 7 to 30 mol% of the structural group c).
25. The copolymer as claimed in any of claims 1 to 8, characterized in that the mole fraction of the

structural group c) is at least 5 mol% lower than the mole fraction of the structural group a).

10. A process for preparing the copolymer as claimed in  
5 any of claims 1 to 9, characterized in that one prepares by addition of from 3 to 96 mol% of a monomer forming the structural group a), from 3 to 96 mol% of a monomer forming the structural group b) and/or from 0.05 to 75 mol% of a monomer forming the  
10 structural group c) in the form of a free-radical, ionic or complex-coordinative bulk, solution, gel, emulsion, dispersion or suspension polymerization.
11. The process as claimed in claim 10, characterized in  
15 that from 40 to 80 mol% of a monomer forming the structural group a), from 10 to 55 mol% of a monomer forming the structural group b) and/or from 2 to 30 mol% of a monomer forming the structural group c) are reacted.  
20
12. The process as claimed in claim 10 or 11, characterized in that the reaction is carried out in the form of a gel polymerization in the aqueous phase.  
25
13. The process as claimed in claim 12, characterized in that the gel polymerization is carried out at a temperature of from -5° to +50°C and a concentration of the aqueous solution of from 40 to 70% by weight.  
30
14. The use of the copolymers as claimed in any of claims 1 to 9 as stabilizers for aqueous building material systems and water-based paint and coating systems.

15. The use as claimed in claim 14, characterized in that the copolymers and terpolymers are used in an amount of from 0.01 to 5% by weight, based on the dry weight of the building material system, paint system or coating system.  
5
16. The use as claimed in claim 14 or 15, characterized in that the aqueous building material systems comprise cement, lime, gypsum plaster, anhydrite, etc., as hydraulic binders.  
10
17. The use as claimed in any of claims 14 to 16, characterized in that the copolymers or terpolymers are used in the form of an aqueous solution having a solids content of from 0.2 to 3% by weight.  
15